

20070727-401250

1 GTGACTGCTATCACCCCTGGCGGTCTTGTTGAAAGGAATAATTACTCTAGTGTCGACT 60
 1 M T A I T L G G L L L K G I I T L V S T
 61 CACACATCTTCAACGCTTCCAGCATTCAAAAAGATCTTGGTAGCAAACCGCGCGAAATC 120
 61 H T S S T L P A F K K I L V A N R G E I
 121 GCGGTCCGTCTTCCGTGCAGCACTCGAAACCGGTGCAGCCACGGTAGCTATTACCC 180
 121 A V R A F R A A L E T G A A A T V A I Y P
 181 CGTGAAGATCGGGATCATTCCACCGCTCTTGCTTCTGAAGCTGTCCGCATTGGTACT 240
 181 R E D R G S F H R S F A S E A V R I G T
 241 GAAGGCTCACCAAGTCAAGGCACCTGGACATCGATGAAATTATCGGTGCAGCTAAAAAA 300
 241 E G S P V K A Y L D I D E I I G A A K K
 301 GTTAAAGCAGATGCTATTACCCGGATATGGCTTCCTGTCTGAAAATGCCAGCTTGCC 360
 301 V K A D A I Y P G Y G F L S E N A Q L A
 361 CGCGAGTGCAGGGAAAACGGCATTACTTTATTGGCCCAACCCCAGAGGTTCTGATCTC 420
 361 R E C A E N G I T F I G P T P E V L D L
 421 ACCGGTGATAAGTCTCGTGCAGTAACCGCCGCAAGAAGGCTGGTCTGCCAGTTGGCG 480
 421 T G D K S R A V T A A K K A G L P V L A
 481 GAATCCACCCCGAGCAAAACATCGATGACATCGTTAAAGCGCTGAAGGCCAGACTTAC 540
 481 E S T P S K N I D D I V K S A E G Q T Y
 541 CCCATCTTGAAAGGCAGTTGCCGGTGGTGGCGGACCGGTATGCGCTTTGTTCTTCA 600
 541 P I F V K A V A G G G G R G M R F V S S
 601 CCTGATGAGCTCCGCAAATTGGCAACAGAACAGCATCTCGTGAAGCTGAAGCGGCATTGGC 660
 601 P D E L R K L A T E A S R E A E A A F G
 661 GACGGTTCGGTATATGTCGAACGTGCTGTGATTAACCCCGACACATTGAAGTGCAGATC 720
 661 D G S V Y V E R A V I N P Q H I E V Q I

FIG. 1A

CTTGGCGATCGCACTGGAGAAGTTGTACACCTTATGAACGTGACTGCTCACTGCAGCGT
 721 -----+-----+-----+-----+-----+-----+-----+-----+ 780
 L G D R T G E V V H L Y E R D C S L Q R
 CGTCACCAAAAAGTTGTCGAAATTGCGCCAGCACAGCATTGGATCCAGAACTGCGTGAT
 781 -----+-----+-----+-----+-----+-----+-----+-----+ 840
 R H Q K V V E I A P A Q H L D P E L R D
 CGCATTGTCGGATGCAGTAAAGTTCTGCCGCTCCATTGGTTACCAGGGCGCGGGAAACC
 841 -----+-----+-----+-----+-----+-----+-----+-----+ 900
 R I C A D A V K F C R S I G Y Q G A G T
 GTGGAATTCTGGTCGATGAAAAGGGCAACCACGTTTCATCGAAATGAACCCACGTATC
 901 -----+-----+-----+-----+-----+-----+-----+-----+ 960
 V E F L V D E K G N H V F I E M N P R I
 CAGGTTGAGCACACCGTGACTGAAGAAGTCACCGAGGTGGACCTGGTGAAGGCGCAGATG
 961 -----+-----+-----+-----+-----+-----+-----+-----+ 1020
 Q V E H T V T E E V T E V D L V K A Q M
 CGCTTGGCTGCTGGTGCAACCTTGAAGGAATTGGGTCTGACCCAAGATAAGATCAAGACC
 1021 -----+-----+-----+-----+-----+-----+-----+-----+ 1080
 R L A A G A T L K E L G L T Q D K I K T
 CACGGTGCAGCACTGCAGTGCACCGGCATCACCAACGGAAGATCCAAACAAACGGCTCCGCCCA
 1081 -----+-----+-----+-----+-----+-----+-----+-----+ 1140
 H G A A L Q C R I T T E D P N N G F R P
 GATACCGGAACTATCACCGCGTACCGCTCACCAAGGGAGCTGGCGTTCGTCTTGACGGT
 1141 -----+-----+-----+-----+-----+-----+-----+-----+ 1200
 D T G T I T A Y R S P G G A G V R L D G
 GCAGCTCAGCTGGTGGCGAAATCACCGCACACTTGACTCCATGCTGGTGAAGATGACC
 1201 -----+-----+-----+-----+-----+-----+-----+-----+ 1260
 A A Q L G G E I T A H F D S M L V K M T
 TGCCGTGGTTCCGACTTGAAACTGCTGTTGCTCGTGCACAGCGCGCTGGCTGAGTTC
 1261 -----+-----+-----+-----+-----+-----+-----+-----+ 1320
 C R G S D F E T A V A R A Q R A L A E F
 ACCGTGTCTGGTGGCAACCAACATTGGTTCTGCGTGCAGCGGGAAAGAGGGAC
 1321 -----+-----+-----+-----+-----+-----+-----+-----+ 1380
 T V S G V A T N I G F L R A L L R E E D
 TTCACTTCCAAGCGCATGCCACCGGATTATCGCGATCACCCACACCTCCTCAGGCT
 1381 -----+-----+-----+-----+-----+-----+-----+-----+ 1440
 F T S K R I A T G F I G D H P H L L Q A

FIG. 1B

CCACCTGCGGATGATGAGCAGGGACGCATCCTGGATTACTTGGCAGATGTCACCGTGAAC
 1441 -----+-----+-----+-----+-----+-----+-----+-----+ 1500
 P P A D D E Q G R I L D Y L A D V T V N
 AAGCCTCATGGTGTGCGTCAAAGGATGTTGCAGCACCAATCGATAAGCTGCCAACATC
 1501 -----+-----+-----+-----+-----+-----+-----+-----+ 1560
 K P H G V R P K D V A A P I D K L P N I
 AAGGATCTGCCACTGCCACCGGGTCCCGTGACCGCCTGAAGCAGCCTGGCCCAGCCGCG
 1561 -----+-----+-----+-----+-----+-----+-----+-----+ 1620
 K D L P L P R G S R D R L K Q L G P A A
 TTTGCTCGTGATCTCCGTGAGCAGGACGCAGTGGCAGTTACTGATAACCACCTCCGCGAT
 1621 -----+-----+-----+-----+-----+-----+-----+-----+ 1680
 F A R D L R E Q D A L A V T D T T F R D
 GCACACCAGTCTTGCTTGCACCCGAGTCCGCTCATTGCACTGAAGCCTGCCAGAG
 1681 -----+-----+-----+-----+-----+-----+-----+-----+ 1740
 A H Q S L L A T R V R S F A L K P A A E
 GCCGTCGCAAAGCTGACTCCTGAGCTTGTCCGTGGAGGCCTGGGGCGCGCACCTAC
 1741 -----+-----+-----+-----+-----+-----+-----+-----+ 1800
 A V A K L T P E L L S V E A W G G A T Y
 GATGTGGCGATGCGTTCCCTTTGAGGATCCGTGGGACAGGCTCGACGAGCTGCGCGAG
 1801 -----+-----+-----+-----+-----+-----+-----+-----+ 1860
 D V A M R F L F E D P W D R L D E L R E
 GCGATGCCGAATGTAAACATTAGATGCTGCTTCGCGCCGCAACACCGTGGGATACACC
 1861 -----+-----+-----+-----+-----+-----+-----+-----+ 1920
 A M P N V N I Q M L L R G R N T V G Y T
 CCGTACCCAGACTCCGTCTGCCGCGCTTGTAAAGGAAGCTGCCAGCTCCGGCGTGGAC
 1921 -----+-----+-----+-----+-----+-----+-----+-----+ 1980
 P Y P D S V C R A F V K E A A S S G V D
 ATCTTCCGCATCTCGACCGCTTAACGACGTCTCCAGATGCGTCCAGCAATCGACGCA
 1981 -----+-----+-----+-----+-----+-----+-----+-----+ 2040
 I F R I F D A L N D V S Q M R P A I D A
 GTCCTGGAGACCAACACCGCGGTAGCCGAGGTGGCTATGGCTTATTCTGGTATCTCT
 2041 -----+-----+-----+-----+-----+-----+-----+-----+ 2100
 V L E T N T A V A E V A M A Y S G D L S
 GATCCAAATGAAAAGCTCTACACCCCTGGATTACTACCTAAAGATGGCAGAGGAGATCGTC
 2101 -----+-----+-----+-----+-----+-----+-----+-----+ 2160
 D P N E K L Y T L D Y Y L K M A E E I V
 AAGTCTGGCGCTCACATTCTGGCCATTAAAGGATATGGCTGGTCTGCTTCGCCAGCTGCG
 2161 -----+-----+-----+-----+-----+-----+-----+-----+ 2220
 K S G A H I L A I K D M A G L L R P A A

FIG. 1C

2221 GTAACCAAGCTGGTCACCGCACTGCGCCGTGAATTGATCTGCCAGTGCACGTGCACACC 2280
 V T K L V T A L R R E F D L P V H V H T
 2281 CACGACACTGCGGGTGGCCAGTTGGCTACCTACTTGCTGCAGCTCAAGCTGGTGCAGAT 2340
 H D T A G G Q L A T Y F A A A A Q A G A D
 2341 GCTGTTGACGGTGCTTCCGCACCACTGTCTGGCACCACCTCCCAGCCATCCCTGTCTGCC 2400
 A V D G A S A P L S G T T S Q P S L S A
 2401 ATTGTTGCTGCATTCGCGCACACCCGTCGCGATACCGGTTTGAGCCTCGAGGCTGTTCT 2460
 I V A A F A H T R R D T G L S L E A V S
 2461 GACCTCGAGCCGTACTGGGAAGCTGTGCGCGGACTGTACCTGCCATTGAGTCTGGAACC 2520
 D L E P Y W E A V R G L Y L P F E S G T
 2521 CCAGGCCAACCGGTCGCGTCTACGCCACGAAATCCCAGGCGGACAGTTGTCACCTCG 2580
 P G P T G R V Y R H E I P G G Q L S N L
 2581 CGTGCACAGGCCACCGCACTGGCCTTGCTGATCGCTCGAGCTCATCGAACGAACTAC 2640
 R A Q A T A L G L A D R F E L I E D N Y
 2641 GCAGCCGTTAATGAGATGCTGGACGCCAACCAAGGTACCCATCCTCCAAGGTTGTT 2700
 A A V N E M L G R P T K V T P S S K V V
 2701 GGCGACCTCGCACTCCACCTGGTGGTGCAGGTTAGATCCAGCAGACTTGCTGCAGAC 2760
 G D L A L H L V G A G V D P A D F A A D
 2761 CCACAAAAGTACGACATCCAGACTCTGTCATCGCGTTCTGCAGGCGAGCTTGGTAAC 2820
 P Q K Y D I P D S V I A F L R G E L G N
 2821 CCTCCAGGTGGCTGCCAGAACCACTGCGCACCCGCGCACTGGAAGGCCGCTCCGAAGGC 2880
 P P G G W P E P L R T R A L E G R S E G
 2881 AAGGCACCTCTGACGGAAGTTCCCTGAGGAAGAGCAGGCGCACCTCGACGCTGATGATTCC 2940
 K A P L T E V P E E E Q A H L D A D D S

FIG. 1D

2941 AAGGAACGTCGCAACAGCCTCAACCGCCTGCTGTTCCGAAGCCAACCGAAGAGTTCCCTC 3000
 K E R R N S L N R L L F P K P T E E F L
 GAGCACCGTCGCCGCTTCGGCAACACCTCTGCCTGGATGATCGTGAATTCTCTACGGA 3060
 3001 E H R R R F G N T S A L D D R E F F Y G
 CTGGTCGAGGGCCGCGAGACTTTGATCCGCCTGCCAGATGTGCGCACCCACTGCTTGT 3120
 3061 L V E G R E T L I R L P D V R T P L L V
 CGCCTGGATGCGATCTCTGAGCCAGACGATAAGGGTATGCGCAATGTTGTGCCAACGTC 3180
 3121 R L D A I S E P D D K G M R N V V A N V
 AACGGCCAGATCCGCCAATGCGTGTGCGTGACCGCTCCGTTGAGTCTGTCACCGCAACC 3240
 3181 N G Q I R P M R V R D R S V E S V T A T
 GCAGAAAAGGCAGATTCTCCAACAAGGCCATGTTGCTGCAACCATTGCTGGTGTGTC 3300
 3241 A E K A D S S N K G H V A A P F A G V V
 ACTGTGACTGTGCTGAAGGTGATGAGGTCAAGGCTGGAGATGCAGTCGCAATCATCGAG 3360
 3301 T V T V A E G D E V K A G D A V A I I E
 GCTATGAAGATGGAAGCAACAATCACTGCTCTGTTGACGGCAAGATTGAACCGCTTGTG 3420
 3361 A M K M E A T I T A S V D G K I E R V V
 GTTCCTGCTGCAACGAAGGTGGAAGGTGGCGACTTGATCGTCGTCGTTCTAA 3474
 3421 V P A A T K V E G G D L I V V V S *

FIG. 1E

ATCC 21253 NRRL B-11474	pyc pyc	801 IVAAFAHTRR DTGLSLEAVS DLEPYWEAVR GLYLPFESGT PGPTGRVYRH	850
ATCC 21253 NRRL B-11474	pyc pyc	851 EIPGGQLSNL RAQATALGLA DRFELIEDNY AAVNEMLGRP TKVTPSSKVV	900
ATCC 21253 NRRL B-11474	pyc pyc	901 GDLALHLVGA GVDPADFAAD PQKYDIPDSV IAFLRGELGN PPGGWPEPLR	950
ATCC 21253 NRRL B-11474	pyc pyc	951 TRALEGRSEG KAPLTEVPEE EQAHLADDSS KERRNSLNRL LFPKPTEEFL	1000
ATCC 21253 NRRL B-11474	pyc pyc	1001 EHRRRFGNTS ALDDREFFYG LVEGRETLIR LPDVRTPLLV RLDAISEPDD	1050
ATCC 21253 NRRL B-11474	pyc pyc	1051 KGMRNvvvANv NGQIRPMRVR DRSVESVTAT AEKADSSNKG HVAAPPAGVV	1100
ATCC 21253 NRRL B-11474	pyc pyc	1101 TVTVAAEGDEV KAGDAVAlIE AMKMEATITA SVDGKIDRVV VPAATKVEGG E	1150
ATCC 21253 NRRL B-11474	pyc pyc	1151 DLIVVVS	

FIG. 2B

GTGACTGCTATCACCTGGCGGTCTTGGTAAAGGAATAATTACTCTAGTGTGACT
 CACACATCTTCAACGCTTCCAGCATTCAAAAAGATCTGGTAGCAAACCGCGCGAAATC
 GCGGTCCGTGCTTCCGTGAGCACTCGAAACCGGTGAGCCACGGTAGCTATTACCC
 CGTGAAGATCGGGATCATTCACCGCTTTGCTCTGAAGCTGTCGCAGCTGGTACT
 GAAGGCTCACCAAGTCAAGGCGTACCTGGACATCGATGAAATTATCGGTGAGCTAA
 GTTAAAGCAGATGCTATTACCCGGATATGGCTTCTGTCTGAAATGCCAGCTGCC
 CGCGAGTGCAGGAAACCGCATTACTTTATGGCCCAACCCAGAGGTTCTGATCTC
 ACCGGTGTAAAGTCTCGTGGTAAACCGCCGAGAAGGCTGGTGCAGTTGGCG
 GAATCCACCCCGAGCAAAACATCGATGACATCGTTAAAGCGCTGAAGGCCAGACTAC
 CCCATTTGTAAAGGAGTTGGTGCAGGCGGTATGCCAGTTGTTCTCA
 CCTGATGAGCTCCGAAATTGGCACAGAACGATCTGTGAAGCTGAAGCGGCATTGGC
 GACGGTTGGTATATGTGAAACGTGCTGTGATTAACCCCCAGCACATTGAAGTGCAGATC
 CTTGGCAGTCGACTGGAGAAGTTGACACCTTATGAACGTGACTGCTACTGCAGCGT
 CGTCACCAAAAGTTGTCGAAATTGCGCCAGCACAGCATTGGATCCAGAACTGCGTGT
 CGCATTGTGCGGATGCACTAAAGTTCTGCCCTCATGGTTACAGGGCGCGGGAAACC
 GTGGAATTCTTGGTGTGATGAAAGGCAACACGTTTACATGAAATGAACCCACGTATC
 CAGGGTGGACACCCGTGACTGAAGAAGTCAACCGAGGTTGGACCTGGTGAAGGCCAGATG
 CGCTTGGCTGCTGGTGCACACCTGAAGGAATTGGGCTGACCCAGATAAGATCAAGACC
 CACGGTGCAGCACTGCACTGCCGATCACCAACGGAGATCCAAACACGGCTCCGCCA
 GATACCGGAACATATCACCGCGTACCGCTCACCAAGGGAGCTGGCTTGTGACGGT
 GCAGCTCAGCTGGTGGCGAAATCACCGCACACTTGACTCCATGCTGGTAAAATGACC
 TGCCGTGGTCCGACTTGAAACTGCTGTTGCTGTGACAGCGCGCGTGGCTGAGTTC
 ACCGGTGTCTGGTGTGCAACCAACATTGGTTCTTGGCTGCGTGTGCGGGAGAGGAC
 TTCACCTCAAGCGCATCGCCACCGGATTATCGCGCATACCCACACCTCCCTCAGGCT
 CCACCTGCGGATGATGAGCAGGGACGCGATCTGGATTACTGGCAGATGTCACCGTGAAC
 AAGCTCATGGTGTGCTCCAAAGGATGTTGAGCACCAATCGATAAGCTGCCAACATC
 AAGGATCTGCCACTGCCACGGTCTCCGTGAGCAGGACGACTGGCAGTTGACCCAGCCCG
 TTTGCTCGTGTGATCTCGTGTGAGCAGGACGACTGGCAGTTACTGATAACCACCTCCCG
 GCACACCAGTCTTGTGACCCGAGTCCGCTATTGCACTGAAGCCTGCGGAGAG
 GCCGTGCAAAGCTGACTCCTGAGCTTGTGAGGCTGGAGGCTGGGGCGCGACCTAC
 GATGTGGCGATGCGTTCTTGTGAGGATCGTGGGACAGGCTCGACGAGCTGCGCGAG
 CGCATGCCGAATGAAACATTGAGATGCTGCTTGTGCGGGCAACACCGTGGGATACACC
 CCGTACCCAGACTCGTGTGCGCGTGTGAGGAGCTGCCAGCTCCGGCGTGGAC
 ATCTCCGATCTTCGACCGCTTAACGACGCTCCAGATGCGTCCAGCAATGACGCA
 GTCCGGAGACCAACACCGCGTAGCCAGGCTGGCTATGGCTTATTCTGGTATCTCT
 GATCAAATGAAAGCTACACCGTGGATTACTACCTAAAGGATGGCTGGCTGCTGCCAGCTGCG
 AAGTCTGGCGCTCACATTGCGCATTAAAGGATATGGCTGGCTGCTTGTGCCCCAGCTGCG
 GTAACCAAGCTGGTACCCGACTGCCGTGAATTGATCTGCCAGTGCACGTGCACACC
 CACGACACTGCCGGTGGCCAGTTGGCTACCTACTTGTGAGCTCAAGCTGGTGCAGAT
 GCTGTTGACGGTGTCTCGCACCACGTCTGCAACCCACTCCAGCCATCCCTGCTGCC
 ATTGTTGCTGCACTCGCCACACCCGCTGCGATACCGGTTGTGAGGCTCGAGGCTGTTCT
 GACCTCGAGCCGTAACGGGAGCTGCGCGACTGTGATCTGCCATTGAGTCTGGAACC
 CCAGGCCAACCGGTGCGCTACCGCACGAAATCCAGGCGGAGCTGCTTCAACCTG
 CGTCACAGGCCACCGCACTGGGCTTGCTGATCGCTTCGAGCTCATCGAAAGACAAC
 GCAGCCGTTAATGAGATGCTGGGACGCCAACAGTCACCCATCTCCAAGGTTGTT
 GGCAGCTCGCACTCCACCTGGTGGTGCAGGCTGAGATCCAGCAGACTTTGCTGAGAC
 CCACAAAAGTACGACATCCAGACTCTGTCATCGCGTCTCTGCGCGAGCTGGTAAC
 CCTCCAGGTGCTGGCCAGAACCAACTCGCGACCCCGCGCACTGGAGGCCGCTCGAAGGC
 AAGGACACTCTGCGAGGAAAGTCCGTGAGGAGAGCAGGCCACCTCGAGCTGATGATTCC
 AAGGAACGTCGCAACAGCTCAACCGCTGCTGTTCCGAAGGCAACCGAAGAGTTCC
 GAGCACCGTCGCCGCTTGGCAACACCTCTGCGCTGGATGATCGTAATTCTCTACGG
 CTGGTCAGGGCGCGAGACTTGTGATCCGCTGCCAGATGTCGCACTGCTTGT
 CGCTGGATGCGATCTCTGAGCCAGACGATAAGGGTATGCCAATGTTGTGGCAACCG
 AACGGCCAGATCCGCCAATGCGTGTGCGTGAACCGCTCCGTTGAGTCTGTCAACCGCAACC
 GCAGAAAAGGAGATTCTCCAACAAGGGCATGTTGCTGCACCATCGCTGGTGTG
 ACTGTGACTGTTGCTGAAGGTGATGAGGTCAAGGCTGGAGATGCACTGCAATCATCGAG
 GCTATGAAGATGGAAGCAACAATCACTGCTTGTGACGGCAAGATTGAACCGCGTTGTG
 GTTCCCTGCTGCAACGAAGGTGGAAGGTGGCAGCTGATCGTGTGTTCTAA

FIG. 3A

MTAITLGGLLLKGIIITL' STHTSSTLPAFKKILVANRGEIAVRAFRAALETGAATVAIYP
REDRGSFHRSEASEAVRIGTEGSPVKAYLDIDEIIGAAKKVKADAIYPGYGFLSENAQLA
RECAENGITFIGPTPEVLDLTGDKSRAVTAAKKAGLPVLAESTPSKNIIDIVKSAEGQTY
PIFVKAVAGGGGRGMRFVSSPDELRKLATEASREAAAFGDGSVYVERAVINPQHIEVQI
LGDRTGEVVHLYERDCSLQRRHQKVEIAPAQHLDPELRDRICADAVKFCRSIGYQGAGT
VEFLVDEKGHNHFIEMNPRIQVEHTVTEEVTEVDLVKAQMRLAAGATLKEGLTQDKIKT
HGAALQCRITTEDPNNGFRRPDTGTITAYRSPGGAGVRLDGAAQLGGEITAHFDMSLVKMT
CRGSDFETAVARAQRALAEFTVSGVATNIGFLRALLREEDFTSKRIATFIGDHPHLLQA
PPADDEQGRILDYLADEVNPKPHGVRPKDVAAPIDKLPNIKDLPLPRGSRDRLKQLGPAA
FARDLREQDALAVTDTFRDAHQSLLATRVSFALKPAAEAVAKLTPELLSVEAWGGATY
DVAMRFLFEDPWDRLDELREAMPNVNIQMLLRGRNTVGYTPYPSVCRFVKEAASSGVD
IFRIFDALNDVSQMRPAIDAVLETNTAVAEVAMAYSGDLSDPNEKLYTLDYYLKMAEEIV
KSGAHILAICKDMAGLLRPAAVTKLVTALRREFDLPVHVHTHDTAGGQLATYFAAAQAGAD
AVDGASAPLSGTTSQPSLSAIVAAFHTRRDGLSLEAVSDLEPYWEAVRGLYLPFESGT
PGPTGRVYRHEIPGGQLSNLRAQATALGLADRFELIEDNYAAVNEMLGRPTKVTSSKV
GDLALHLVGAGVDPADFAADPQKYDIPDSVIAFLRGELGNPPGGWPEPLRTRALEGSEG
KAPLTEVPEEEQAHLDADDSKERRNSLNRLFPKPTEEFLEHRRRGNTSALDDREFFYG
LVEGRETLLIRLPDVRTPLLVRLDAISEPDDKGMRNVVANVNGQIRPMRVRDRSVESVTAT
AEKADSSNKGHVAAPFAGVVTVTVAEGDEVKAGDAVATIEAMKMEATITASVDGKIERVV
VPAATKVEGGDLIVVVS

FIG. 3B

Effect of various substrate concentrations on pyruvate carboxylase activity from *C. glutamicum* BF100 (○) and ATCC 21253 (●).

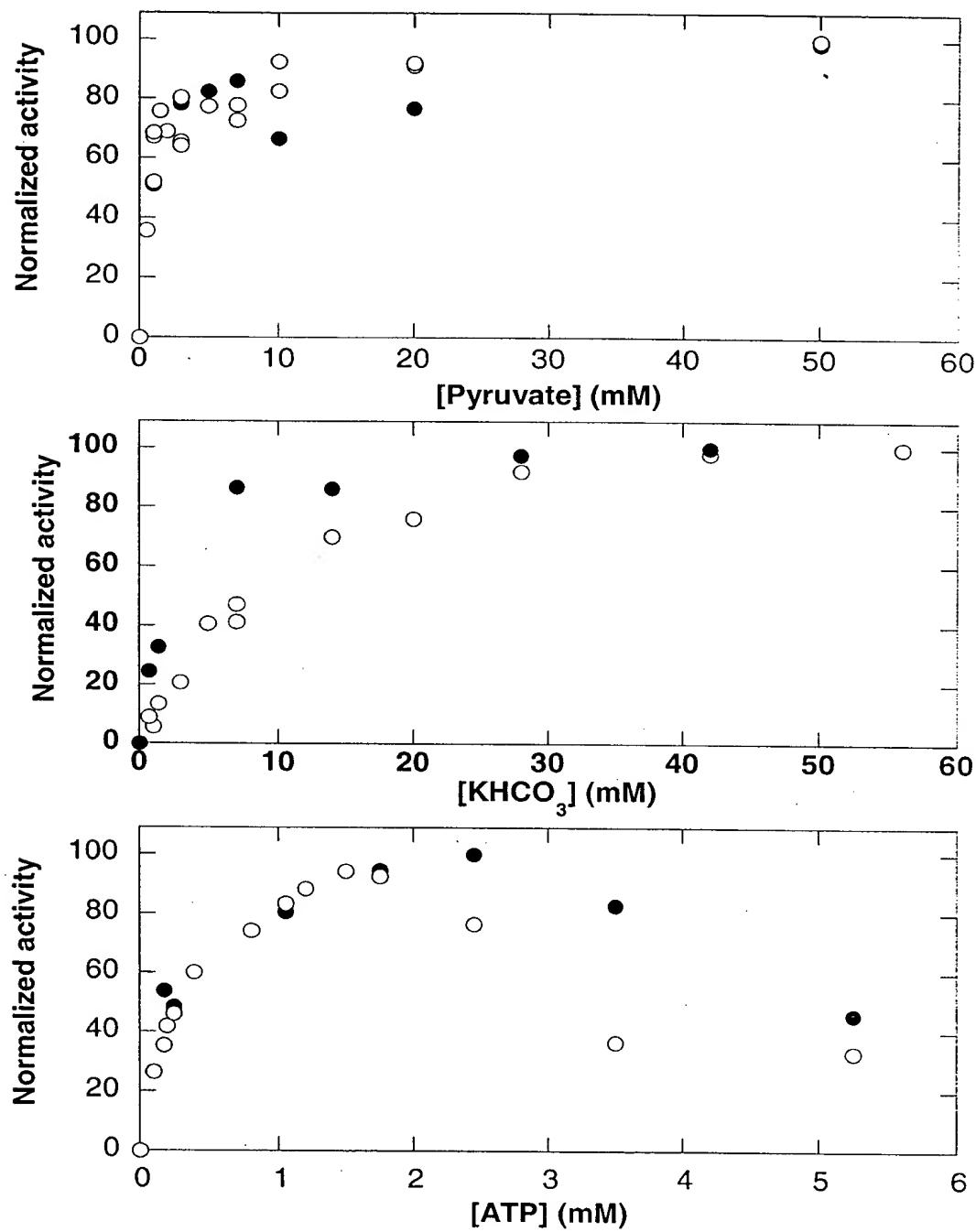


FIG. 4

Effect of aspartate on the activity of pyruvate carboxylase from *C. glutamicum* BF100 (○) and ATCC 21253 (●).

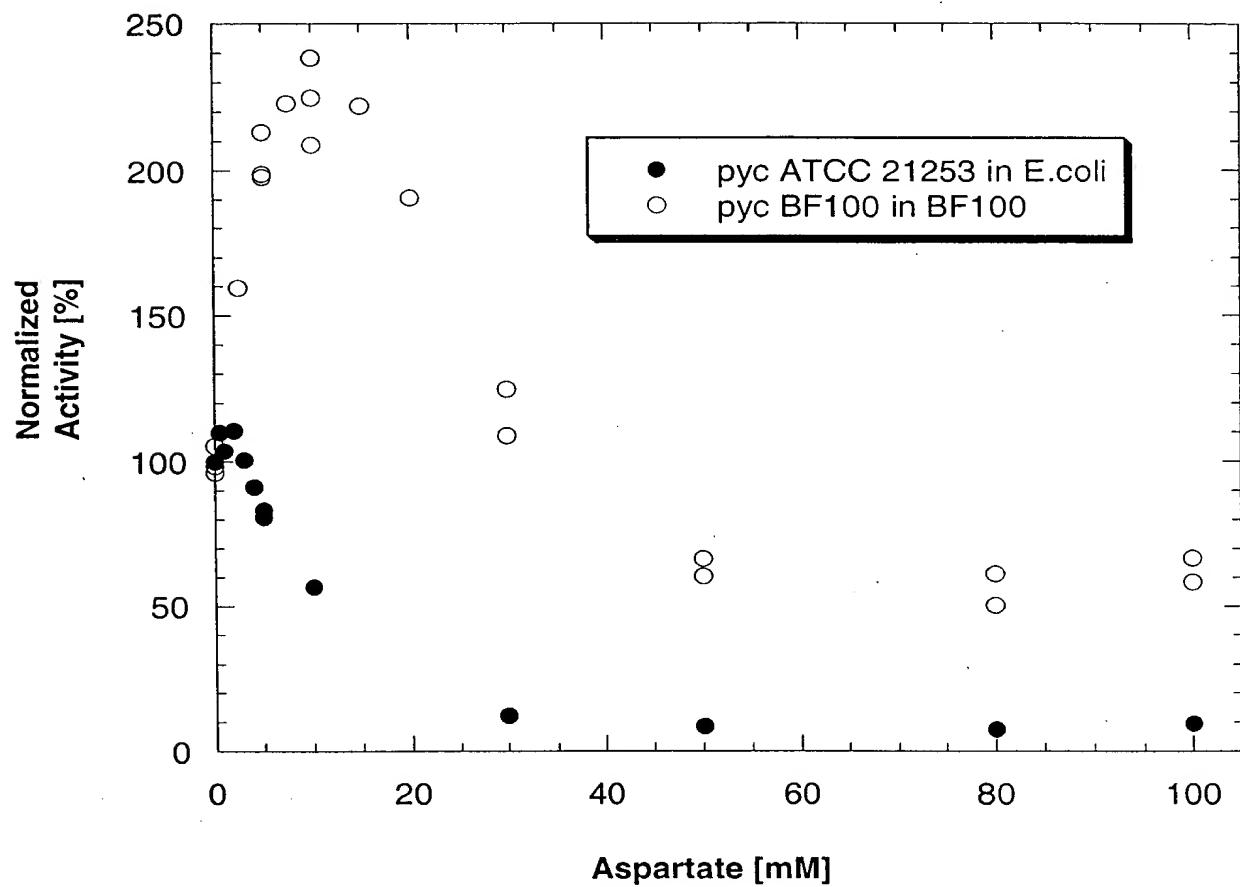


FIG. 5

Effect of Acetyl-CoA on pyruvate carboxylase activity from *C. glutamicum* BF100 (O) and ATCC 21253 (●).

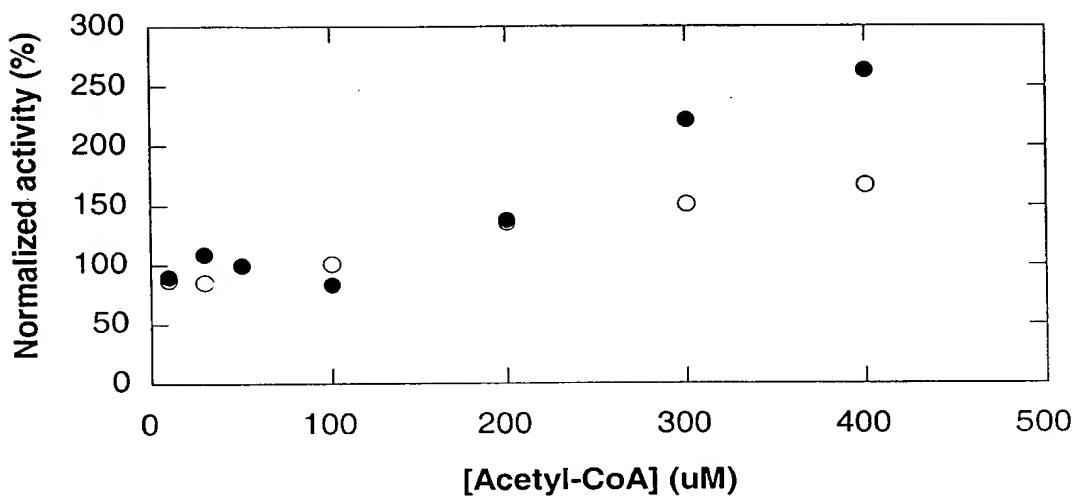


FIG. 6